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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,977	07/11/2005	Petrus Helena Vromans	NL 030031	8093
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EXAMINER				
JOLLEY, KIRSTEN				
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1792				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,977

Applicant(s)

VROMANS ET AL.

Examiner

Kirsten C. Jolley

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) 9-15 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8 and 16-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 19, 2009 has been entered.

Response to Arguments/Amendments

2. Applicant's arguments filed October 19, 2009 have been fully considered.

The 35 USC 102(e) rejections over Ou-Yang have been withdrawn in response to Applicant's amendments to the claims requiring that a liquid is applied between an inner radius *offset from a center spindle hole* and an outer radius. While this newly added limitation is not taught by Ou-Yang, the Examiner notes that it is known in the spin coating art to apply a coating on an optical data storage medium from an inner radius offset from the center spindle to an outer radius at the periphery of the substrate, and therefore the claims are newly rejected under 35 USC 103(a) over Ou-Yang in view of the newly cited art of Shida et al., as discussed below.

With respect to claim 2, Applicant's arguments on pages 8-9 are convincing that Ou-Yang lacks a teaching that the radial temperature profile has a shape substantially resembling the radial thickness profile resulting when δT_{10} and δT_{11} are zero (when no heat is used). This claim

would be allowable if the 35 USC 112, 2nd paragraph rejections are corrected and if amended to include all of the limitations of the independent claim.

With respect to dependent claim 8, Applicant argues that Ou-Yang does not introduce an act of inhibiting oxygen for leaving a top portion of the liquid layer unsolidified. This is not convincing because the secondary reference of Shida et al. teaches that UV curing occurs in the spin coating apparatus after coating (paragraph [0086]). It would have been obvious to have performed UV curing in an atmosphere of air because the references do not teach otherwise and such is most cost-effective and efficient. Air is an atmosphere containing oxygen and would necessarily cause some oxygen inhibition in the top portion of the liquid layer.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is vague and indefinite because the phrase “resulting when $\delta T_{ro} > \delta T_{ri}$ would be zero” is confusing. The expression “ $\delta T_{ro} > \delta T_{ri}$ ” is a comparison between two values and does not result in a number such as zero. The Examiner questions whether claim 2 should instead state --resulting when δT_{ro} and δT_{ri} are zero--, as is taught in the specification at page 9, lines 9-12.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-5, 8, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ou-Yang (US 2004/0137751) in view of Shida et al. (US 2002/0071909).

The Examiner notes that the filing date of Ou-Yang (December 2, 2003) is later than Applicant's PCT filing date (November 4, 2003) and foreign priority date (January 14, 2003). However, the filing date of Ou-Yang's Provisional application No. 60/431,346 of December 2, 2002 precedes both of Applicant's PCT filing date and foreign priority date. The Examiner has reviewed the Provisional application No. 60/431,346, and notes that the Provisional application provides support for its invention and the limitations relied upon for rejection of the claims as set forth below.

Ou-Yang discloses a method of manufacturing an optical data storage medium comprising: applying a liquid onto a rotating substrate and rotating the substrate further to spread out the liquid between an inner radius r_i and an outer radius r_o (paragraph [0028]) and solidifying the liquid by means of exposure to UV radiation. Ou-Yang teaches that after applying the liquid onto the rotating substrate, the liquid layer is heated using a temperature gradient where the temperature at the outer radius has a temperature higher than at the inner radius (paragraphs [0014-0015] and [0033-0034]).

With respect to the limitation requiring "heating the liquid layer by heating means in an area with a radius larger than the inner radius r_i ," it is noted that the radiation 5 in Figure 1 of Ou-Yang points at a location along the radius that is outside of the inner radius (i.e., larger than the inner radius), between the inner radius and outer radius. Similarly, Figure 2 illustrates that the radiation 10 also points to plural locations along the radius outside of the inner radius. Further, Ou-Yang teaches in paragraphs [0016] and [0018] that hot gas or IR lamps may be directed onto several areas of the substrate; such would necessarily include locations at an area between the inner radius and outer radius because the area between the inner radius and outer radius encompasses the entire disk substrate surface. It is additionally noted that the Ou-Yang reference is directed to the creation of a heat *gradient* along the radius of disk substrate, which results in the gradually increasing temperature rise of the liquid layer between r_i and r_o as claimed.

Ou-Yang discloses use of a substrate. Ou-Yang lacks a teaching of a plurality of layers deposited on the substrate and that the liquid layer is one of a transparent spacer layer or transparent cover layer. The Examiner takes Official notice that it is well known that optical disks such as DVDs, CDs, and Blu-Rays, which are taught to be useful with Ou-Yang's process (paragraph [0014]) include a plurality of layers on the substrate surface, and that spin coating processes are known to be useful for the application of transparent spacer layers or transparent cover layers on optical disks. It would have been obvious for one having ordinary skill in the art to have used the process of Ou-Yang for the application of a transparent spacer layer or transparent cover layer, in combination with a plurality of layers on the substrate, with the

expectation of successful results since it is well known that spin coating techniques for coating on optical disks, such as Ou-Yang, are useful for the application of spacer or cover layers.

Ou-Yang lacks the newly added limitation specifying that the inner radius r_i is offset from a center spindle hole. The prior art of Shida et al. is cited for its teaching that it is well known in the art of manufacturing optical data storage mediums to provide a coating layer by spin coating from an inner radius offset from a center spindle hole to the outer radius of the disk substrate (see Figures). It would have been obvious for one having ordinary skill in the art to have incorporated this feature, as well as the means for coating taught in Shida et al., into the process of Ou-Yang since the Ou-Yang reference only generally mentions the use of spin coating to apply a coating layer and does not specify particular spin coating procedures or apparatus for coating its optical disk.

As to claim 3, Ou-Yang teaches use of IR radiation in paragraphs [0017] through [0019].

As to claim 4, Ou-Yang teaches that it is known to effect a thermal gradient in the manufacture of an optical disk by use of a heated or cooled chuck in its background section (paragraphs [0011] to [0013]).

As to claim 5, Ou-Yang teaches use of a directed flow of heated gas in paragraphs [0016] and [0018]-[0019].

As to claim 8, Ou-Yang is silent with respect to the details of a UV curing step. The secondary reference of Shida et al. teaches that UV curing occurs in the spin coating apparatus after coating (paragraph [0086]). It would have been obvious to have performed UV curing in an atmosphere of air because the references do not teach otherwise and such is most cost-effective

and efficient. Air is an atmosphere containing oxygen and would necessarily cause some oxygen inhibition in the top portion of the liquid layer.

As to claims 16-18, Ou-Yang discloses controlling the range of thickness variation of the surface of the optical data storage medium to within $\pm 1.0 \mu\text{m}$ in Figure 3. While Ou-Yang does not illustrate a thickness variation range of $\pm 0.5 \mu\text{m}$ or $\pm 0.2 \mu\text{m}$, the example illustrated in Figure 3 is the result of only a single heat source (paragraph [0033]) and one would expect better results when using more than a single heat source to achieve a more fine-tuned temperature gradient distribution. Therefore it would have been obvious for one having ordinary skill in the art to have adjusted the temperature distribution such that results are improved with multiple heat sources and within the claimed variance ranges.

7. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ou-Yang in view of Shida et al. as applied to claim 1 above, and further in view of JP 2001-307391 A.

As to claim 6, Ou-Yang lacks a teaching of using a mask in the outer peripheral zone of the substrate to prevent exposure of the liquid layer in this zone from UV radiation. JP '391 discloses that it is known to use a mask to shield UV light in the outer peripheral zone of a coated optical disk in order to prevent curing in this area to prevent formation of the lifting of resin at the outer peripheral portion of the disk (see abstract). As to claim 7, it would have further been obvious to have rotated the substrate at a high frequency to remove the unexposed portion of the liquid at the outer periphery of the substrate since this is the portion that is formed having unacceptable results.

Allowable Subject Matter

8. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Applicant's arguments on pages 8-9 of the response are convincing. The prior art does not teach or fairly suggest using a radial temperature profile that has a shape similar to the radial thickness profile when no heat is used.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Kirsten C Jolley/
Primary Examiner, Art Unit 1792

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